DOCUMENT RESUME

ED 452 844 IR 020 686

AUTHOR	Schank, Roger C.; Jona, Kemi
TITLE	Extracurriculars as the Curriculum: A Vision of Education for the 21st Century.
PUB DATE	1999-12-00
NOTE	12p.; In: Forum on Technology in Education: Envisioning the Future. Proceedings (Washington, D.C., December 1-2, 1999); see IR 020 683.
AVAILABLE FROM	For full text: http://www.air.org/forum/forum.htm. For full text: http://www.air.org/forum/abschank.htm.
PUB TYPE	Opinion Papers (120) -- Reports - Evaluative (142) -- Speeches/Meeting Papers (150)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Curriculum Development; *Educational Change; *Educational Technology; Elementary Secondary Education; Futures (of Society); *Government Role; Instructional Development; *School Role; *Teacher Role; World Wide Web
IDENTIFIERS	Technological Change; *Web Based Instruction

ABSTRACT

This paper focuses on where changes in education related to technology will take America, as a nation, how the roles of schools and teachers will change in the 21st century, and what the government should do to foster this change. The online delivery of courses over the World Wide Web is identified as the primary driver of change in the 21st century education system. Key areas in which technology will drive educational change are discussed, including new roles for teachers, changes in primary education, new roles for schools, centralization of curriculum ,and instructional development and academic tutoring. How change will happen is described, and the following things that the government can do to facilitate needed changes in the education system are described: take a more active role; support development of courses; invest in supporting technologies; and experiment with new approaches to schooling. (MES)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 452 844

EXTRACURRICULARS AS THE CURRICULUM: A VISION OF EDUCATION FOR THE 21ST CENTURY

Roger C. Schank and Kemi Jona
The Institute for the Learning Sciences
Northwestern University
and
Cognitive Arts Corporation

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

INTRODUCTION

The education system in our country, based for too long on the pedagogically invalid "factory model," is in dire need of an overhaul. Thankfully, technology is on the verge of fundamentally reshaping the American education system. In particular, the technology to deliver full-length courses is rapidly becoming a reality, and the impact will be pervasive. The early signs of this change are widely visible; where these changes will take us, how the roles of schools and teachers will change in the 21st century, and what our government should do to foster this change is the focus of this paper. Perhaps one of the most surprising things is the direction this change will come from.

I see technology driving educational change in the following key areas:

- **New role for teachers.** The availability of courses delivered over the web will lead to a shift in teachers' responsibilities from teaching academic subjects to teaching social and interpersonal skills. All academic subjects will be taught online and, as a result, teachers will no longer be expected to be experts in these subjects. Instead, the role of teachers will evolve into one that combines the skills of a social worker, guidance counselor, and camp counselor. Teachers will move away from a role of authority figure to one of a learning facilitator or guide as well as providing one-on-one mentoring.

- **New role for schools.** The widespread availability of online courses outside of school will lead to a fundamental change in the role of schools as well. The schools' most important role will be counterbalancing the social isolation and alienation that will come from the increasing amount of time students will spend in front of computer and TV screens. The role of school will change to become more of a social and activity center where students learn social skills through participation in group activities.

- **Centralization of curriculum and instructional development.** The delivery of education via online courses will change the entire landscape of course development

IR020686

BEST COPY AVAILABLE

and control of the curriculum. We will be able to realize tremendous efficiencies by developing top-quality courses once, rather than having every teacher in the country repeatedly doing lesson planning for the same courses. The fiction of local control of education will become evident and a panel of experts instead of local groups of well-meaning, but uninformed, parents will develop the curriculum.

This paper elaborates on each of these changes, explains how I see the transformation occurring, and, perhaps most importantly, describes the ways in which the government can act now to facilitate changes that have the opportunity to radically reshape and improve our country's education system.

Online Delivery of Courses will Drive Change

The primary driver of change in the 21st century education system has already been created. It is the creation and delivery of courses over the web. Those familiar with this area know that it is about to undergo explosive growth. Companies are already jockeying for position in this marketplace, and many more are entering it every day. Venture capital is pouring in. These online courses will first be developed for the university and continuing education marketplace, and from there they will gradually be adopted in secondary and primary education venues. Don't get confused by what these courses look like today. Now we are seeing the equivalent of the filmed plays of the early movie making era. This will not be the case for long. Soon there will be high quality major productions. The bottom line is that traditional academic courses are no longer going to be taught by local teachers. The computer will allow the creation of learn by doing courses rather than learn by telling courses. The computer will allow the designers of these courses to be the best and the brightest in any given field. Moreover, these courses will be very engaging, non threatening, diverse, and fun. Once the very best physicists in the world sit down and create a physics course, there will be little use for local physics teachers. This will soon happen as investors seeing the rise in internet stocks begin to enter the education market. The same will be true for every academic subject and for many subjects that are not now seen as academically relevant. Companies will create courses and guarantee employment to those who pass them. Quality universities will put their names on these courses. This will create tremendous change for everyone involved in the education system, from students to teachers to administrators to government education agencies.

New Role for Teachers

The teaching of traditional academic subjects, first in high school and later in elementary school as well, will be increasingly done via online courses. Once the initial set of these courses becomes successful, there will be more of a push to make the technology available and people will be increasingly accepting of them. Eventually what you'll have in school is a library of hundreds of these courses. The teachers are going to have to do things that the teachers themselves are better at doing than the computer. What can they do better? What they can do better is personal one-on-one tutoring; teaching kids how to work in a group trying to

accomplish something; teaching crucial interpersonal relationship skills. Looking at Littleton and all the other school shootings it's obvious that the schools should be stressing the kinds of things children and adolescents really need to learn. How to get along with each other. How to communicate better. How to deal effectively with stress. How to function in society.

The role of teachers is going to evolve away from being the expert in math, science, and other subjects. We've been evolving that way for a long time. Today, most high school teachers could hardly claim to be the expert in physics or history or literature in their communities. In the future, the best minds in the country, in the whole world, will be sitting there at your desktop. The initial knee-jerk reaction is likely to be that schoolteachers are going to feel disenfranchised. But there is an opportunity to start teaching those social skills that students desperately need. I think what's going to happen is that teachers are going to understand they can do a better job in these areas. A lot of teachers are doing it already, even though it is rarely part of the formal curriculum. They do it because they have to do it. In the future, these social skills will become the central focus of what teachers will teach. Today there is a push to measure teachers by the test scores achieved by their students. Tomorrow, teachers will be judged by more meaningful measures as we begin to value teachers for their human qualities.

The trends we currently see in this country only reinforce the need for this change in teachers' roles. Children are growing up in households where one or both parents are working all kinds of hours, leaving little time to provide the kind of guidance children need. Teachers will increasingly be needed to step into this role, and the sooner we as a society acknowledge it, and address this need openly and honestly, the sooner we will be able to effect positive change. I'd like to see the teachers really seriously trained in social work and guidance counseling. They need to understand how to effectively deal with a wide range of psychological problems. This is really a failure of our current approach to education. We need teachers who are specifically trained to remove their own personal feelings about a student and understand how to deal with that student in a complex situation.

Not only will teachers act much more as social workers or guidance counselors, but also they will lead courses that explicitly focus on developing social and interpersonal skills. In many ways these course will resemble the kinds of programs provided by Outward Bound. Let students participate in teams and deal with the team decisions that have to be taken care of. The students go off on a trip and they try to accomplish something. The teacher becomes an advisor to the team, or a guide on an expedition.

I have always believed that summer camp is a more valuable experience than school. Certainly many children look back on their summer camp experiences with much greater fondness than their school experiences. Personal growth takes place more easily at camp and personal growth is what high school ought to be about. With so many students going to college, high school as a kind of watered down college is really an archaic idea. So, I say let school become camp. At summer camp, the counselors have to get the kids to function together. The model of camp counselor is very valid for the role that teachers will assume. Right now teachers are authority

figures. They have the power to assign grades, to pass or fail students. This is why teachers for the most part are bad guidance counselors or team leaders. A camp counselor who doesn't have that power over students is actually more useful, specifically because the authority relationship is completely different. Once teachers move out of this authority role, they will eliminate a roadblock that prevents them from connecting with the students who need the most guidance.

CHANGES IN PRIMARY EDUCATION

The changes in elementary schools will be similar to those I envision for high school, with variations in the relative proportion of time devoted to academic subjects vs. social interaction. As I described above, I think you should take every subject by computer when you're in high school and everything else should be about social and interpersonal issues. In elementary school I think that the academic subjects that are taught by computer are the basics, the three 'R's. The other things ought to be taught by people. Kids should spend less time sitting in front of a computer. I don't think little kids should be sitting much. I think they should be going out and doing stuff and exploring the world and talking about it. That's what I'd like to see them do. There's plenty of time for them to sit later.

In fact, one of the biggest problems we have in elementary school is the amount of time kids are forced to sit still. It's so hard, it's the last thing they want to do. I'd rather see the kids play a lot and have a little bit of instruction. I'd like them to be spending more time playing than doing academics. I think the idea that you're going to sit down and instruct a seven-year-old with something complex is a real problem. A seven-year-old can sit there and do endless math examples but what we are really teaching is how to follow instructions and how to sit for long periods of time. This was originally part of the scheme of training factory workers. While I think there is a valuable lesson in teaching a seven-year-old to sit down and focus on a task, it shouldn't be about doing fourteen hundred multiplication tables. In the old days they'd send eight-year-olds out to work real jobs and in some ways they weren't worse off for it. They were worse off for having their childhood taken away and they were worse off for being in sweatshop conditions that were oppressive. Yet many of them succeeded very well in life by learning good work habits early. To a large extent I think that's what elementary school should be about. It should be about reading, writing and arithmetic and good work habits. Also it should be about instilling a love of learning. So, the software should be available for the curious to follow wherever their interests take them.

Think about what parents do when they have a six-year-old at home. They build stuff, they draw stuff, and they look at stuff. Parents don't sit down and try to tell them something. They interact. You want kids to be physically engaged in activities. It's the sitting them down that s torture. When we sit them down we think we're going to instruct them. Well, get over it. We don't have to instruct them. We should focus on the basics that kids have to come out of elementary school with so that they are prepared to begin taking the online courses they will get in high school. Aside from the basics of reading, writing and arithmetic, learning in elementary school should focus on core skills such as communication, human relations and reasoning. All

those can be done without sitting down. You can go to the zoo and learn how to communicate, to relate to others, and to reason. Students should learn how to stand up in front of people and talk about their ideas. You can only learn how to develop these kinds of public speaking skills by practicing them a lot.

In addition to field trips, I envision team sports as a bigger part of the school day, much as it is in summer camp. A lot of what in today's school system is considered extracurricular, like putting out a school paper, ought to *be* the curriculum. You learn more that way than any other way. The extra-curriculars should become the curriculum.

The other advantage that comes from the accessibility of courses online is that students will be able to learn about topics that interest them at their own pace. I don't think primary school students need to be taking courses with their peers, but a lot of instruction should be available to them. Today, many of our bright elementary school students are bored and would like to be able to go take high school courses. For practical reasons, like scheduling and transportation, this almost is never permitted. Soon all of these high school courses will be available online, and there won't be any compelling reason why students of any age who are ready for them couldn't take them.

Every year there is a story in the paper about an eight- or twelve-year-old who is going to college. The typical reaction to this story is: Oh, my God. Why? Not because people are worried that he or she can't handle the intellectual issues. People are worried he or she can't handle the social issues. With the advent of online courses we will be divorcing the intellectual issues from the social issues. Any child at any age who is intellectually ready can take a high school or college course. They can take calculus when they're six if that's what they're ready for.

NEW ROLES FOR SCHOOLS

The role of schools will change in ways similar to the changes in teachers' roles. As I've said, one of the really big problems we have coming in the future of this country is a tremendous social alienation problem. We are moving in a direction where everybody is staring at a computer or a television all day and all night and not interacting with other people in a meaningful way. I think the schools will have to be the counterbalance to this trend, to actively provide opportunities for social interaction and to teach the skills required for successful interaction with other individuals and within a group or team. If not, we will see more school shootings. Part of the job of the school is to help students learn how to work together and to be a functional part of society.

The school itself will evolve into a sort of student or community center, where kids are engaged in a variety of activities and projects. Perhaps they will be on a team building houses for disadvantaged members of the community, or maybe going out on a trip or having a discussion. There will be a tremendous range of activities, but these will not be purely academic activities as

they are currently. When students are not participating in these activities they will be taking courses online at home, or if the supervision doesn't allow it, at school. Schools will provide the space and resources for students to access the online courses. I don't think there is any need for classrooms. I think that they're an archaic idea, although it will take a while to get rid them.

With schools serving as more of an activity or community center, I think that we will see them becoming much more connected to the community around them. Student activities will involve working on community service projects that bring students into contact with the community they live in. Schools will also become more connected to local businesses, as students have the opportunity to engage in real-world jobs with local employers. The school will become the center of the community, in a much deeper way than it currently is.

CENTRALIZATION OF CURRICULUM AND INSTRUCTIONAL DEVELOPMENT AND ACADEMIC TUTORING

The advent of ubiquitous networking technology will lead to the centralization of key functions in the education system, just as it has in the business world. I see this happening in three key areas.

First, the delivery of education via online courses will change the entire landscape of course development and control of the curriculum. Each academic field will supply its experts to help create the courses in that field. Once these courses are created, the notion that a teacher at a local school should be creating their own course no longer makes any sense whatever. Consortiums of academic experts, educational technologists, and businesses will work to develop, update, refine, and improve these courses. As a society, we will be able to realize tremendous efficiencies by developing these top-quality courses once, rather than having every teacher in the country repeatedly doing lesson planning for the same courses.

In addition to eliminating the redundant effort of reinventing the same courses across the country, we will also realize a tremendous improvement in quality control of the courses. The era where we have countless numbers of students who have been turned off on physics, math, chemistry, or literature because of poor teachers teaching bad courses in these subjects will be over. Every student in the country will be able to select from a wide range of top-quality courses in any subject that interests them.

Second, the fiction of local control of education will become evident and a panel of education experts instead of local groups of well-meaning, but uninformed, parents will develop the curriculum. What will be the point of local school boards arguing over which courses should or should not be offered, when every imaginable course is available? A central body, comprised of the country's best experts on education and learning, with representatives from the various academic fields, will assume control over the curriculum represented by the online courses.

Third, the advance of technology, in particular live videoconferencing, will lead to the creation of a centralized pool of tutors for various subject matters. Just as today's companies have centralized phone centers where customers can call in for service, we will see the creation of one-on-one tutoring services provided via live videoconferencing. Having trouble with some calculus problems? Just connect to the calculus tutoring center for a face-to-face session with an expert tutor. These learning service centers will provide students across the country, no matter what community they live in, with access to the best coaches available to help them with their work in the online courses.

HOW IT WILL HAPPEN

The changes I envision for 21st century education will happen gradually. But the seeds of these changes have already been planted. Universities, and their partners, are beginning to develop online courses. Increasing sums of money are being spent on these courses, and we will soon see a fair number of online courses. However, the impact of these online courses will soon begin to be felt at the secondary, and eventually, the primary levels too. How will this happen?

Initially, progress will be slow. For example, right now a physics professor who wants to put their introductory physics course online usually just puts his or her lecture notes and some quizzes or tests online. That just makes the course worse. But, what eventually will happen is that the course is going to improve. Physicists and educational technologists will sit down to redesign the physics course and ask the important questions. For example, what should physics be teaching you? We will see the best and the brightest redesign these types of courses and—with enough money available—you will have some phenomenal multimedia courses published online.

Very shortly after they are made available at the university level, these courses will find their way to high school. Why? The most in-demand courses in universities today are the big freshman introductory courses: calculus, biology, physics, economics, psychology, etc. So, from an economic standpoint, it makes sense that these high-enrollment courses are likely to be the first online courses that get developed. But it is these same courses that students are taking as Advanced Placement (AP) courses in high school. So, once these online courses are created, why wouldn't high schools want to adopt them? This will be especially attractive to those schools who can not offer all the AP courses their students wish to take. Eventually, when enough of these online courses are out there it would be possible to take an entire first year of college in high school and receive college credit. Once this happens, the AP system as we know it will disappear. There will be no need to have an arbitrary test determine whether or not you get credit for a course, you can just take the same course college freshmen are taking and get college credit directly.

To the extent that these AP-level courses are successful they will begin to be developed for other high school courses as well. It's not going to happen all of a sudden. One day a high school principal will say, "We don't have any new teachers for our business course, so we'll take the college level business course, which Columbia is offering." Or, "We have never been able to offer a course in psychology, but now there is a college level course in psychology that we can let our students register for." Perhaps initially, high schools will allow students to take one course a year online. At first they will be for electives or optional courses. Well, students will soon be questioning why they can't take two courses online, especially if they are better than the existing courses. These students will want to take the college level courses because they can get college credit. No high school can sit there and say you can't do it. They're available. Students who are determined to take these courses can do them at home, independently of their high school's policies. The availability of online courses in high school is going to happen slowly, but it's going to happen. It has to happen. It's easy to imagine that it may not be the case in two years, but it's much less easy to imagine that it won't be the case in five years.

The availability of these online courses will cause a tremendous gap in the high school system. If you have really first rate AP courses taught online, and enough of them out there, the actual high schools themselves will become less important. Why take high school physics if you can take college physics courses? If the high school physics course didn't necessarily prepare you for college, maybe there isn't a need for high school physics at all. It may be possible to build a set of courses to cause the curriculum in high school to have to change. My argument about high school curriculum is that they're teaching the wrong material in many cases. The materials that they are teaching are basically watered down college courses. Once authentic college courses are available to high school students online, the entire content of the high school curriculum will be called into question. Of course, the college courses aren't necessarily teaching the right stuff either. This too shall change. Competitive forces will cause more practical and relevant courses to be built and soon college introductory courses will focus on how to run a business rather than the theory of micro-economics or how to use chemistry as a doctor rather than principles of organic chemistry.

With increasing numbers of high school students flocking to take the high-quality online courses, for which they can receive college credit, the traditional courses will find themselves with depleted enrollments. High school teachers will feel disenfranchised and will undoubtedly push back against this trend. This will be a painful period for many high school teachers. But as I described above, this will be a period when the role of a high school teacher will undergo a transformation to someone who is trained to deal with students' psychological and social interaction needs. While there will be resistance to change, the change will happen nonetheless.

WHAT THE GOVERNMENT'S ROLE SHOULD BE

The tremendous changes that technology will bring to our education system will necessitate an equally radical change in the role the government should play. Initially, I see four key things the government can do to facilitate needed changes in our education system. They are:

- Changing from a focus on goal and standard setting to a more active role in recruiting the country's best experts and designing the best online courses.
- Supporting development of courses, particularly those that may not be economically viable for the private sector to create.
- Investing in new software technologies that can facilitate online learning and interactivity.
- Thinking about and planning for a vision of school that does not revolve around, or even include, classrooms. The government should begin to pilot test the new role of school as activity center even before all the technology is available.

ACTIVIST ROLE

One of the most important things the government must do is to rethink the limitations imposed on the Department of Education from exercising direct control over curriculum decisions at the local level. At some point the federal government has to understand what its job really is. The idea that local education is being run by a group of well-meaning, but uninformed parents on a school board is insane. They don't know what they should be teaching. The whole idea that we have a local school board in control of education is so much of a farce because they don't really have control. The control is really in the hands of book publishers and the Educational Testing Service. The federal government has to get involved with this.

The government must take an active role in recruiting the country's best experts and working with them to design the best online courses. The private sector may have more or less success recruiting these experts. But I think if the federal government decided to get all the physicists in front of cameras to get their physics knowledge, it would be much more likely to succeed. There will be a tremendous amount of prestige associated with being asked to help shape the physics course that all the students in the country will take.

But this requires the government and the Education Department in particular, to move away from a focus on goals and curriculum standards towards helping to shape the curriculum and courses themselves. Let's face it, the government's standard setting is just a thinly disguised way of influencing the curriculum anyway. To help guide this country's education system into a new, and much more productive, paradigm, the government must take an activist role. In other words, it must lead, not follow.

Supporting Development of Courses

A second important role for the government to play is by supporting the creation of online courses that are not economically viable for the private sector to build. For example, I think there ought to be a yearlong course for all college students that provides an introduction to medicine. But, the private sector is not going to build that course, at least not for a while. The reason is that course builders have to work within the demands of the existing system. There isn't a place for new or innovate courses right now. There are subject matters that are off the mainstream that are going to take ages for anyone to build a course about. Pre-med and business schools will be much higher up on the list. I think it's important for the federal government to pick up the slack and fund course development in the areas that aren't commercially viable. I'd like there to be thousands of courses. I'd like to see courses that only twenty-five people per year would ever take. Without support from the government, the range of course offerings will be much more constrained by economics than it should be.

Investing in Supporting Technologies

The Federal Government should also start spending a serious amount of money investing in areas that will support the creation and delivery of online courses, for example, areas that are very speculative or are very out in left field or require new technologies to build. The universities would research that sort of thing if the federal government understood it and funded it. Suppose you are building a national story archive that captures every important person in the country on video. Having such an archive available would tremendously accelerate the creation of high quality online courses. The private sector probably isn't going to do it. The government should fund projects that will contribute to the improvement and advancement of online courses, projects like the development of online simulations and the expansion of expert video databases.

Experimenting with New Approaches To Schooling

Finally, I believe the government is not paying any attention to understanding how to get rid of classrooms. There is still the sense that the classroom is going to continue to suffice as a locus for education. With the advent of online courses, and the changes they will bring to education—from elementary through post-secondary—the era of the classroom is over. The government should begin to study new conceptions of school. And those studies should begin now. There is no need to wait until every course is available online. The government should experiment now with schools that separate the roles of academic learning and social skills even before courses are all online. Start building a school based on an Outward Bound type model, or one that is based on a summer camp model and staffed with teachers trained in dealing with social and interpersonal issues. The time to work out the kinks in this new approach to schooling, to understand the kinds of skills teachers will need, and to determine the kinds of buildings we will need and the resources they will require, is now.

CONCLUSION

The primary driver of change in our education system in the 21st century will be the creation of online courses that will remove from teachers the responsibilities for teaching academic subjects. Instead teachers and schools will focus on combating the increasing social isolation that our society will face. Schools will become activity centers where students work in groups on real-world projects, go on trips, and participate in the community. While students may also use schools as locations to engage in online course work, this course work will be just as available at home.

The advent of online courses and associated networking technology will also lead to a centralization of course and curriculum development. The federal government will need to step into a leadership role to insure that the students of our country benefit from the highest-quality curriculum we can create, informed by our country's leading experts. The Internet economy has created the "first movers advantage"—the first to enter a new marketplace often maintains an advantage over competitors. Our country must seize the opportunity to be the "first movers" in creating a new approach to education.